JOINT
PUBLIC NOTICE

CHARLESTON DISTRICT, CORPS OF ENGINEERS
69A Hagood Avenue
Charleston, South Carolina 29403-5107
and the
S.C. DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
OFFICE OF OCEAN AND COASTAL RESOURCE MANAGEMENT
1362 McMillan Avenue, Suite 400
Charleston, South Carolina 29405

REGULATORY DIVISION
Refer to: P/N #2005-1W-310-P

10 OCTOBER 2005

Pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403), Sections 401 and 404 of the Clean Water Act (33 U.S.C. 1344), and the South Carolina Coastal Zone Management Act (48-39-10 et.seq.) an application has been submitted to the Department of the Army and the S.C. Department of Health and Environmental Control by

TOWN OF KIAWAH ISLAND
c/o COASTAL SCIENCE & ENGINEERING (CSE)
ATTN.: DR. TIM KANA
POST OFFICE BOX 8056
COLUMBIA, SOUTH CAROLINA 29202-8056

for a permit to perform excavation and place fill material in and adjacent to waters of the

ATLANTIC OCEAN

at locations along the shoreline of Kiawah Island in the area of The Ocean Course at Kiawah, (1000 Ocean Course Drive) and lagoons between OCRM monuments 2740 and 2775 on Kiawah Island, Charleston County, South Carolina (Latitude 32.60941°, Longitude 80.00511°)

In order to give all interested parties an opportunity to express their views

NOTICE

is hereby given that written statements regarding the proposed work will be received by both of the above mentioned offices until

12 O'CLOCK NOON, MONDAY, 7 NOVEMBER 2005

from those interested in the activity and whose interests may be affected by the proposed work.

The proposed work consists of using land based equipment to excavate up to 1,000,000 cubic yards of beach sand from a washover area located at the eastern end of Kiawah Island near the Stono Inlet and transporting this material for distribution along 13,000 linear feet of shoreline to build a continuous beach and dune ridge between 600 and 1,000 feet landward of the excavation area. To the west of the excavation area, material will be placed along an eroding

dune escarpment to restore the conditions to the 1999 profile. The project includes the excavation of a 50 foot wide flushing channel across the outer beach at the eastern end in the vicinity of OCRM monuments 2785 and 2790 and closing the existing flushing channel located in the vicinity of OCRM monument 2775. A temporary sand dike will be constructed for access to the excavation area and will be removed upon completion of the sand hauling portion of the project. The purpose of the project is to provide protection for lagoon B and to restore the beach along portions of the Ocean Course at Kiawah.

NOTE: Plans depicting the work described in this notice are available and will be provided, upon receipt of a written request, to anyone that is interested in obtaining a copy of the plans for the specific project. The request must identify the project of interest by public notice number and a self-addressed stamped envelope must also be provided for mailing the drawings to you. Your request for drawings should be addressed to the

U.S. Army Corps of Engineers
ATTN: REGULATORY DIVISION
69A Hagood Avenue
Charleston, South Carolina 29403-5107.

The District Engineer has concluded that the discharges associated with this project, both direct and indirect, should be reviewed by the South Carolina Department of Health and Environmental Control in accordance with provisions of Section 401 of the Clean Water Act. As such, this notice constitutes a request, on behalf of the applicant, for certification that this project will comply with applicable effluent limitations and water quality standards. The work shown on this application must also be certified as consistent with applicable provisions the Coastal Zone Management Program (15 CFR 930). The District Engineer will not process this application to a conclusion until such certifications are received. The applicant is hereby advised that supplemental information may be required by the State to facilitate the review.

This notice initiates the Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. Implementation of the proposed project would impact 275 acres of estuarine substrates and emergent wetlands utilized by various life stages of species comprising the red drum, shrimp, and snapper-grouper management complexes. Our initial determination is that the proposed action would not have a substantial individual or cumulative adverse impact on EFH or fisheries managed by the South Atlantic Fishery Management Council and the National Marine Fisheries Service (NMFS). Our final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the NMFS.

The District Engineer has consulted the most recently available information and has determined that the project is likely to adversely affect the loggerhead sea turtle, *Caretta caretta,* and/or is likely to adversely affect designated critical habitat of the piping plover, *Charadrius melodus.* This public notice serves as a request to the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service to initiate formal consultation on these species and/or critical habitat that may be present in the area which would be affected, pursuant to Section 7(c) of the Endangered Species Act of 1973 (as amended). A biological assessment (or other similar document) detailing our analysis of the effects of the action will be provided.

REGULATORY DIVISION
Refer to: P/N #2005-1W-310-P 10 OCTOBER 2005

The District Engineer has consulted the latest published version of the National Register of Historic Places for the presence or absence of registered properties, or properties listed as being eligible for inclusion therein, and this worksite is not included as a registered property or property listed as being eligible for inclusion in the Register. Consultation of the National Register constitutes the extent of cultural resource investigations by the District Engineer, and he is otherwise unaware of the presence of such resources. Presently unknown archaeological, scientific, prehistorical, or historical data may be lost or destroyed by the work to be accomplished under the requested permit.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for a public hearing shall state, with particularity, the reasons for holding a public hearing.

The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the activity on the public interest and will include application of the guidelines promulgated by the Administrator, Environmental Protection Agency (EPA), under authority of Section 404(b) of the Clean Water Act and, as appropriate, the criteria established under authority of Section 102 of the Marine Protection, Research and Sanctuaries Act of 1972, as amended. That decision will reflect the national concern for both protection and utilization of important resources. The benefit which reasonably may be expected to accrue from the project must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the project will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production and, in general, the needs and welfare of the people. A permit will be granted unless the District Engineer determines that it would be contrary to the public interest. In cases of conflicting property rights, the Corps of Engineers cannot undertake to adjudicate rival claims.

The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this project. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the activity.

If there are any questions concerning this public notice, please contact me at 843-329-8044 or toll free at 1-866-329-8187.

Debra W. King

Debra W. King
Project Manager
Regulatory Division
U.S. Army Corps of Engineers

11. DESCRIPTION OF THE OVERALL PROJECT AND OF EACH ACTIVITY IN OR AFFECTING U.S. WATERS OR STATE CRITICAL AREAS

The proposed activity is a beach restoration and lagoon preservation project along the oceanfront of Kiawah Island, Charleston County, SC (see Sheet 1). Work will include excavation of up to 1,000,000 cubic yards (cy) of beach sand along a washover beach at the eastern end of Kiawah Island near Stono Inlet and transfer by trucks to downcoast areas. Fill placement will encompass ~13,000 linear feet (ft) of shoreline with the goal of building a continuous beach and dune ridge ~600–1,000 ft landward of the excavation area. Downcoast (west) of the excavation area, fill will be placed along an eroding dune escarpment to restore the eroded profile to approximate 1999 conditions (see Sheets 2 and 3).

The project will include excavation of an ~50-ft-wide (low tide) flushing channel across the outer (incipient) beach at the eastern end (vicinity of OCRM profiles 2785 and 2790) and closure of an existing flushing channel in the vicinity of OCRM profile 2775. The planned configuration of the shoreline upon project completion is shown on Sheet 4. The project is intended to provide protection for an incipient lagoon (B on Sheet 4) and restore the beach along portions of the Ocean Course to allow resumption of normal littoral transport (directed toward the west).

Construction will be via land-based equipment (eg, hydraulic hoes, pan earthmovers, dump trucks, and bulldozers) during winter months (ie, outside nesting seasons). Work will be sequenced to maintain flushing (channel "C") in incipient lagoons A and B (Sheet 4). A temporary sand dike will be placed approximately as shown on Sheet 2 so as to provide access to the excavation area. Upon completion of sand hauling to downcoast areas, the temporary dike will be removed so as to expand lagoon B to the west as shown in Sheets 2–4. The flushing channel (C) will be left unstabilized. Portions of lagoon B around its margins may be graded to approximate mean high water so as to promote natural growth of salt marsh vegetation after construction activities are complete.

The applicant desires to complete all work under one mobilization during the earliest environmental window. However, if circumstances do not allow completion in one season, the project would be accomplished over two or more seasons (environmental windows) with total excavation and fill volumes not to exceed ~1 million cubic yards.

Sheets 5–7 show representative excavation and fill sections in the project area along with beach profiles for 1999 and 2005. The proposed project is intended to restore the beach/dune system between OCRM 2740 and 2775 to ~1999 conditions and mitigate severe erosion that has occurred along the Ocean Course since then.

12. OVERALL PROJECT PURPOSE AND THE BASIC PURPOSE OF EACH ACTIVITY IN OR AFFECTING U.S. WATERS

The overall project is intended to mitigate cyclical, severe erosion; create a more stable beach and dune alignment; and conserve incipient lagoon habitat. The entire project area is a conservation zone with no permanent structures within ~500 ft of the oceanfront. The project will be paid for entirely with local funds. Kiawah Island is a private community. Public access to the project area is by boat or via land from Beachwalker County Park (pedestrian access only).

The primary goals of the project are:

- Accelerate the natural shoal-bypassing cycle.
- Create a shoreline planform that is more stable.
- Restore normal littoral transport to the west.
- Rebuild the beach along the Ocean Course and maintain a natural dune buffer between existing fairways and the beach.
- Create topography around the margins of lagoon B that will allow rapid propagation of salt marsh vegetation (similar to lagoon A).

History

The eastern end of Kiawah Island has experienced accelerated erosion along the Ocean Course approximately 1.5 miles west of Stono Inlet. During the past six years, erosion has cut back the dunes to a point landward of the 1983 shoreline, has breached a freshwater impoundment, and has threatened the practice range, 18th hole, and 16th fairway. At OCRM station 2775 (near the Ocean Course clubhouse), there has been 300 ft of dune recession since 1999. Some emergency dune scraping has already been implemented by the owner to protect access roads. If nothing is done, additional infrastructure and key parts of the Ocean Course will be lost to erosion in the next year.

The Ocean Course is eroding because of excess sand accumulated to the east. CSE (1999) documented a rapid buildup of the eastern end of Kiawah Island due to the process of ***shoal bypassing**. Since 1990, an estimated 5 million cubic yards have been added to the Kiawah shoreline. Shoal bypassing is a cyclic process and has been repeated numerous times since the 1940s (Gaudiano and Kana 2001). See Sheet 8. However, the scale of shoal bypassing at Kiawah Island in the 1990s has been greater than all previous episodes.

[*Shoal bypassing – the episodic release of sand from offshore shoals of an inlet and their subsequent onshore migration, attachment to the beach, and spreading alongshore (Sexton and Hayes 1982).]

Sheet 9 shows the eastern end of Kiawah Island in December 1998 and February 2005. Also indicated on one image is the approximate 1989 shoreline. An outer barrier beach formed as Shoal 1 and Shoal 2 merged and migrated shoreward. The new beach is over 2.5 miles long and encloses a lagoon which includes areas of incipient salt marsh (arrows).

Historical shorelines (approximate low watermark) are available for the period 1997 to 2004 (source: CSE and Town of Kiawah Island). Sheet 10 shows the evolution of the eastern end during the past seven years. In 1997, the island was in the early stage of shoal attachment. By 2004, the inlet shoal had fully attached to the beach at the eastern end but remained detached at its western end. This places the present shoal in Stage 2 of the shoal-bypass cycle along the Ocean Course (cf, Sheets 2 and 8).

Stage 1 represents the formative stages of the bypassing cycle with shoals emerging offshore and beginning to migrate shoreward. In Stage 2, the shoal has attached to the beach, possibly leaving at least one minor channel to maintain tidal flushing with the incipient lagoon in the lee of the shoal. Stage 3 represents complete attachment and lateral spreading of the shoal. Each shoal bypass introduces a new source of sand to the beach. However, during Stages 1 and 2, the shoreline receiving the shoal undergoes large-scale, rapid changes. In the lee of the shoal, sand accumulates because the shoal acts as an offshore breakwater. Outside the flanks of the shoal, sand is removed from the beach by waves altered by the presence of the shoal. This creates a zone of rapid accretion flanked by zones of erosion as illustrated on Sheet 8 (Stage 2). Shoal bypassing has created localized erosion problems for development on other islands such as Isle of Palms. These problems have been mitigated by sand scraping and other means.

In Kiawah's present case, the scale and period over which each stage of the cycle will last is uncertain. Gaudiano and Kana (2001) found that the time between previous shoal-bypass events for the eastern end of Kiawah Island ranged from four to ten years (mean 7.6 years). However, these earlier events (cf, Sheet 8) were much smaller and involved shoals containing ~1 million cubic yards. In the present event, much more sand (estimated 5 million cubic yards) is involved. The duration of the shoal-bypass cycle is directly proportional to the volume of sand in the shoal. This suggests that severe erosion is likely to persist along the Ocean Course for at least 5–10 more years if nothing is done to accelerate or alter the shoal bypass cycle and restore normal sand transport to the rest of the island.

Alternatives Considered – Four alternatives were considered for addressing erosion along the Ocean Course:

- Do nothing.
- Relocation of facilities.
- Annual sand scraping by land-based equipment to keep pace with erosion in critical areas.
- Larger scale shoal manipulation, sand scraping, and channel realignment to produce Stage 3 of the shoal-bypass cycle.

The last alternative is the chosen plan by the applicant because it most closely matches the expected outcome if natural processes are allowed to occur. Over the next 50 years, the eastern end of Kiawah Island is expected to continue growing seaward. However, localized erosion along the Ocean Course will likely get worse before the area rebuilds naturally. With major golf tournaments scheduled in the next 5 years, the applicant wishes to avoid further damages to the Ocean Course while expanding the conservation zone to the east.

The chosen plan involves large-scale manipulation of the shoal, combined with sand scraping to restore impacted areas. The prime objective of the planned activity is to straighten the shoreline and accelerate downcoast sand transport. This could be accomplished faster by way of strategic manipulation of the shoal. A straighter shoreline between the shoal and the Ocean Course is the goal and is what nature will produce in time, after about ten years. Natural processes are pushing the shoal landward and downcoast. The project will accelerate the natural process.

Approximately 60–70 percent of the excavation volume (ie, ~600,000 cy) will be transported downcoast and placed between OCRM stations 2740 and 2775 (Sheets 2–3). The balance will be excavated and moved landward to create a more stable shoreline and dune alignment (Sheet 4).

REFERENCES

CSE. 1999. Updated shoreline assessment and condition of the beach, Kiawah Island, South Carolina. Final Report for Town of Kiawah Island; Coastal Science & Engineering, Columbia, South Carolina, 81 pp + appendices.

Gaudiano, DJ, and TW Kana. 2001. Shoal bypassing in South Carolina tidal inlets: geomorphic variables and empirical predictions for nine mesotidal inlets. Jour Coastal Research, Vol 17, pp 280-291.

Sexton, W.J., and M.O. Hayes. 1983. Natural bar bypassing of sand at a tidal inlet. In Proc. Coastal Engineering '82, ASCE, New York, N.Y., pp. 1479-1495.

Williams, ML, and TW Kana. 1987. Inlet shoal attachment and erosion at Isle of Palms, South Carolina: a replay. In Proc Coastal Sediments '87, ASCE, New York, NY, pp 1174-1187.

13. TYPE AND QUANTITY OF MATERIALS TO BE DISCHARGED

All excavations will involve beach-quality sand similar in texture to the native beach. The excavation area is a high-energy ocean beach that formed within the last five years. Prior to 1990, the excavation area was open water having depth of 10 ft or greater. The excavation area formed as an offshore sand bar emerged from the ebb-tidal delta of Stono Inlet, then migrated and attached to Kiawah Island. The excavation area is low lying and subject to frequent washovers. The proposed project will re-establish a more stable beach line in a landward alignment (cf, Sheet 2).

Some silt [grains <0.0625 millimeters (mm)] is known to be present in minor quantities along the native beach. The applicant estimates that such material constitutes no more than 2 percent by volume of the material in the excavation area. Accordingly, up to ~20,000 cy of silt-sized sediment may be excavated and transferred to downdrift fill areas. No clay-sized material is believed to reside in the excavation area above the 10-ft depth contour, given the mode of formation of the deposit.

Construction will be performed "in the dry" – further reducing the transfer of fine-grained material (defined as grain sizes <0.0625 mm).

Incipient lagoon B has accumulated small quantities of mud in surficial layers typically <1 inch thick. The existing lagoon is shrinking because of washovers into it (cf, Sheet 10). Several acres of incipient marsh have formed in the vicinity of proposed flushing channel C. The proposed activity is expected to directly impact no more than 1 acre of incipient marsh in lagoon B. Upon completion of the project, lagoon B is expected to become a marsh-dominated lagoon similar to lagoon A (Sheet 4). Mud will then enter the lagoons in suspension via the flushing channel and will accumulate on the sandy substrate, enhancing ~100 acres of low-energy estuarine habitat.

14. TYPE AND QUANTITY OF IMPACTS TO U.S. WATERS (INCLUDING WETLANDS)

The project area is situated seaward of the 1989 foredune of eastern Kiawah Island. The excavation area and lagoon B were high-energy subtidal habitat in 1990. The entire project area has evolved rapidly and will continue to be transformed as the new outer beach (proposed excavation area) washes into lagoon B. [Note: The proposed project is designed to speed up this process while mitigating downdrift erosion.]

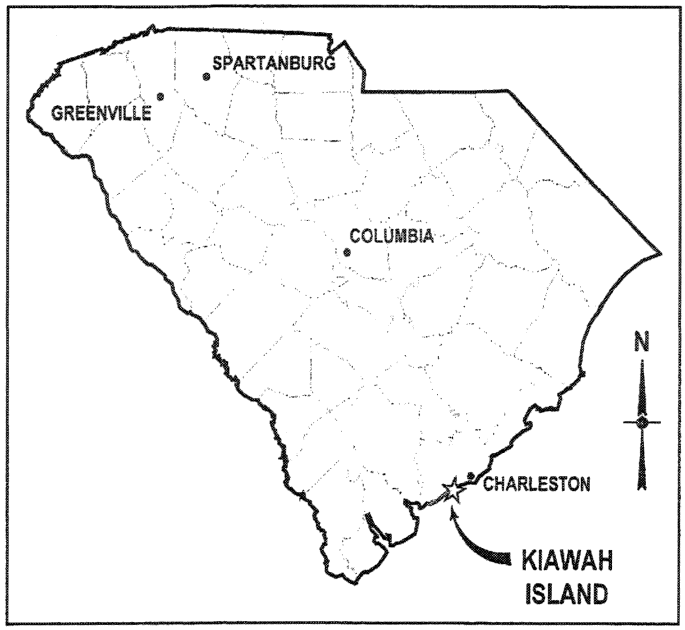
Natural changes since 1990 have converted nearly 400 acres of high-energy ocean shoreline into a barrier beach/lagoon system. The northeastern barrier/lagoon A has equilibrated, whereas barrier/lagoon B is still evolving. Open water and exposed sandy flats in lagoon B are expected to be converted to salt marsh and narrow tidal channels (similar to lagoon A) after the project.

The project will involve excavation of ~100 acres of washover beach which formed within the past 5 years. Up to 175 acres of intertidal beach and unvegetated sandy lagoon substrate will be filled. Construction activities may impact ~1 acre of incipient marsh in the vicinity of proposed flushing channel C. No work will be performed east of line X–Y shown on Sheet 4.

The new flushing channel (C) will remain open for upward of a decade, then close naturally, leaving lagoons A and B fully enclosed by the outer beach. When that happens, the lagoons will become brackish to freshwater impoundments. The salt marsh in the lagoons will be replaced naturally by freshwater species.

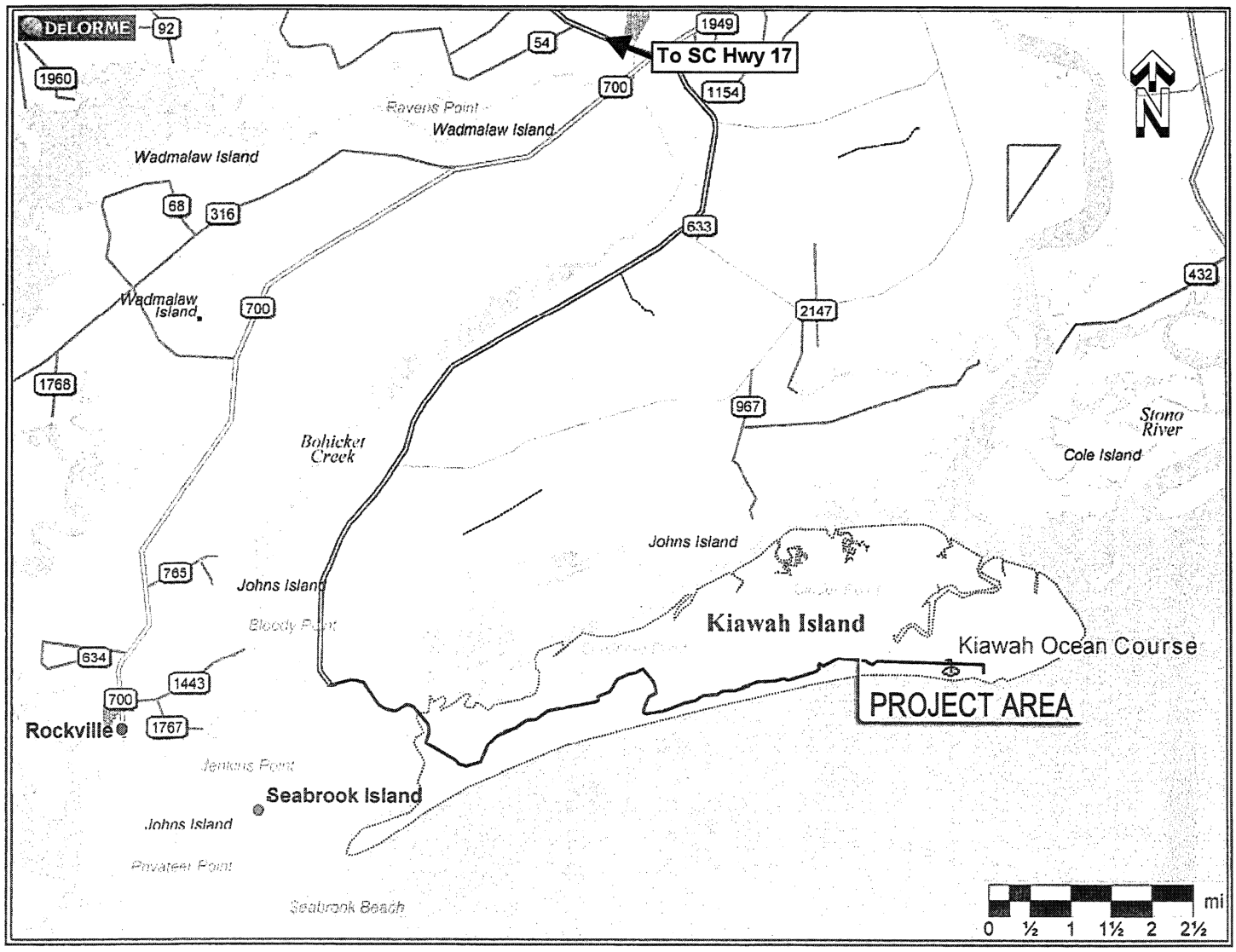
Previous shoal-bypassing events have created impoundments around the eastern end of Kiawah Island. The proposed project is intended to produce conditions that will leave up to 200 acres of freshwater ponds (lagoons A and B).

During construction, there will be localized increases in turbidity due to excavation and filling activities. However, given the lack of clay-sized material in the sediments, turbidity levels will return to normal in minutes to hours (based on settling velocities of silt). Over 98 percent of the material to be moved is in the sand-size range.

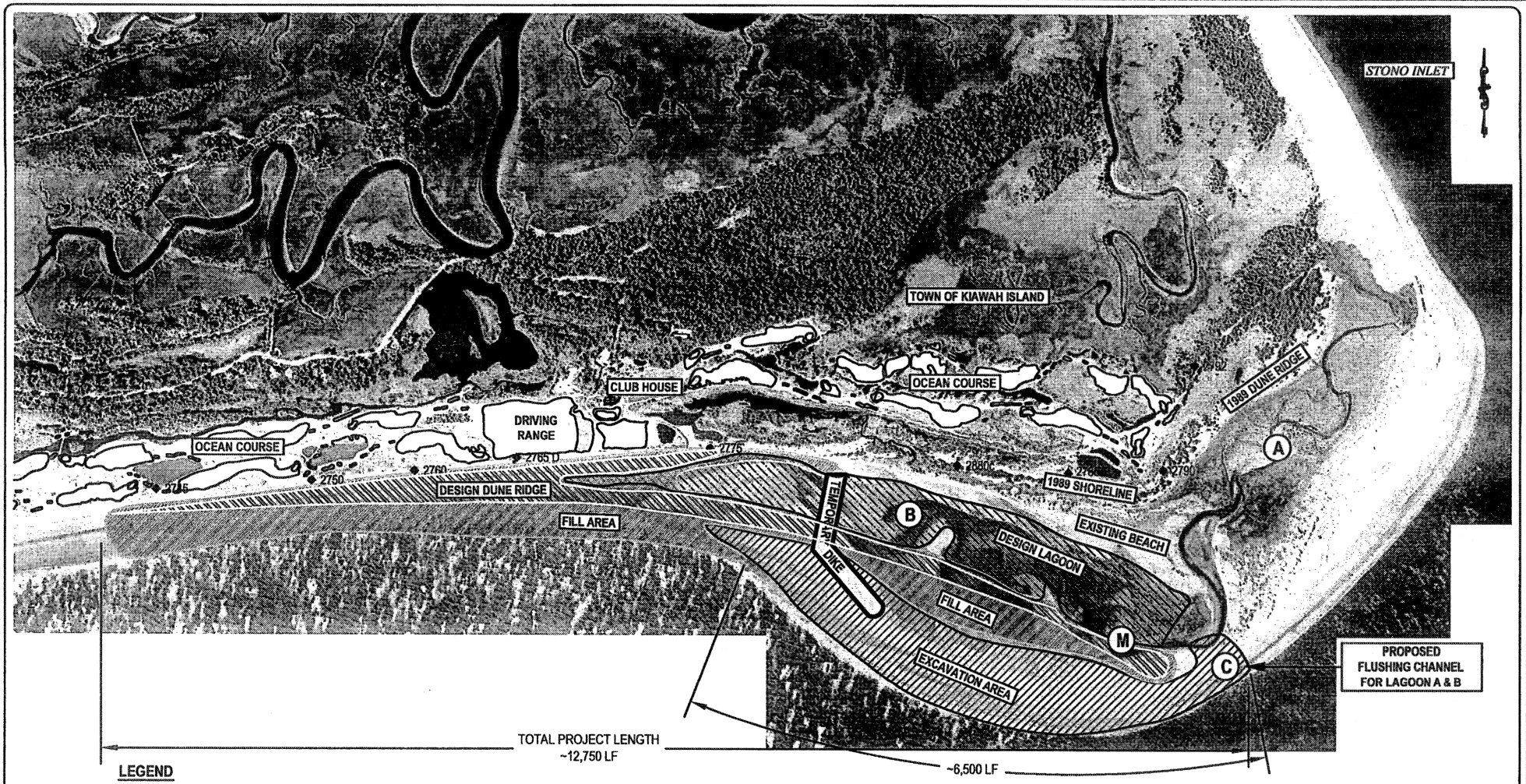


DIRECTIONS FROM SC HWY 17:

Take Highway 17 south from Charleston to Main Road (~8 miles). Turn left, go ~20 miles to Kiawah Island Parkway. (Main Road becomes Bohicket Road on Johns Island.) At the new traffic circle, take Kiawah Island Parkway to main gate. Proceed through gate on Kiawah Island Parkway ~2.5 miles. Turn right onto Governors Drive and proceed ~4 miles to merge with Ocean Course Drive. Proceed on Ocean Course Drive to clubhouse entrance. Project is along the oceanfront, extending east and west from the Ocean Course Club House.



PROJECT TITLE:	PREPARED FOR:	DRAWING TITLE:		
KIAWAH ISLAND EAST END EROSION AND BEACH RESTORATION PROJECT	TOWN OF KIAWAH ISLAND 21 BEACHWALKER DRIVE KIAWAH ISLAND, SC 29455	2005-IW-310-P VICINITY MAP Sheet 1 of 13	SCALE: AS SHOWN DATE: SEPT 2005 DRAWN BY: JJH PROJECT #: 2187	SHEET #: 01 OF: 13



LEGEND

- DESIGN LAGOON (B) & FLUSHING CHANNEL (C)
- EXCAVATION AREA - 100 ACRES
- FILL AREA - 175 ACRES
- TEMP DIKE
- DESIGN DUNE / BERM HABITAT

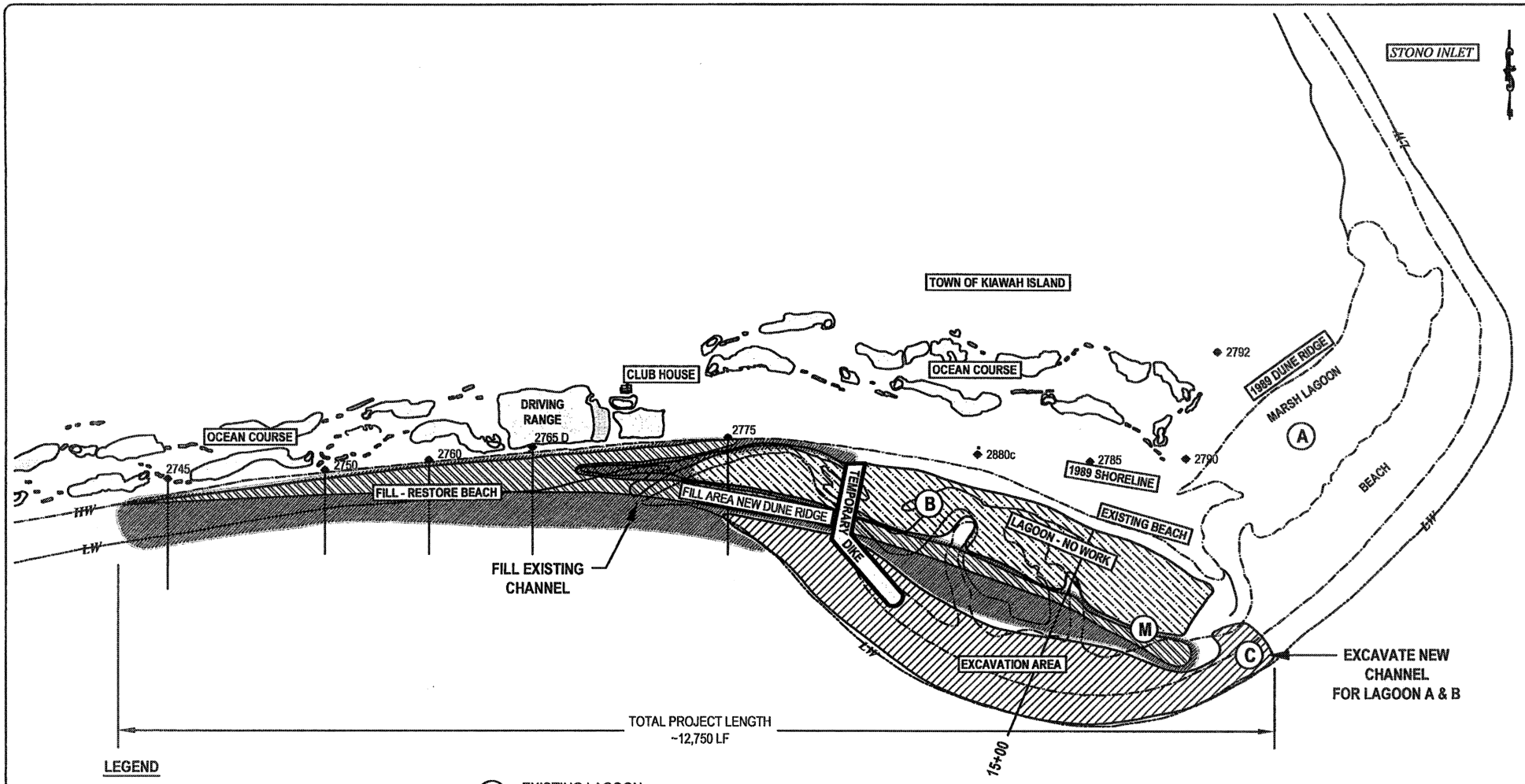
- (A) EXISTING LAGOON
- (B) PROPOSED LAGOON
- (C) FLUSHING CHANNEL
- (M) INCIPIENT MARSH

500 0 250 500 1,000 2,000
GRAPHIC SCALE (IN FEET)

AERIAL IMAGE - MARCH 2005 COURTESY TOWN OF KIAWAH ISLAND

P/N 2005-1W-310-P Sheet 2 of 13

PROJECT TITLE:	PREPARED FOR:	DRAWING TITLE:		
KIAWAH ISLAND EAST END EROSION AND BEACH RESTORATION PROJECT	TOWN OF KIAWAH ISLAND 21 BEACHWALKER DRIVE KIAWAH ISLAND, SC 29455	**PLAN SUPERIMPOSED ON MAR 2005 AERIAL IMAGE**	SCALE: AS SHOWN DATE: SEPT 2005 DRAWN BY: JJH PROJECT #: 2187	SHEET: 2 **2** OF: 13



LEGEND

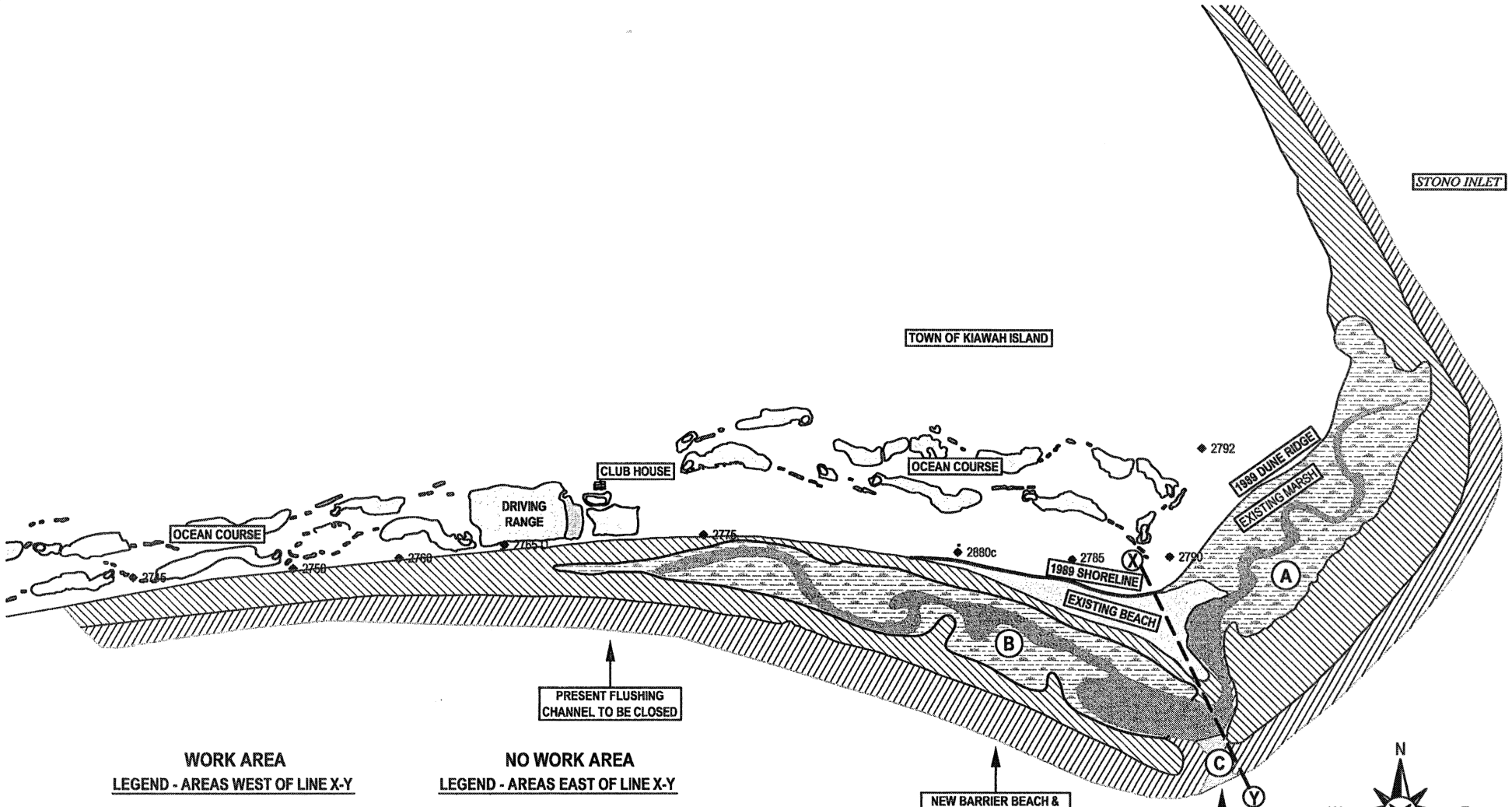
- DESIGN LAGOON (B) & FLUSHING CHANNEL (C)
- EXCAVATION AREA - 100 ACRES
- FILL AREA - 175 ACRES
- TEMP DIKE
- DESIGN DUNE / BERM HABITAT

- (A) EXISTING LAGOON
- (B) PROPOSED LAGOON
- (C) FLUSHING CHANNEL
- (M) INCIPIENT MARSH
- ~HIGH WATER
- ~LOW WATER

AERIAL IMAGE - MARCH 2005 COURTESY TOWN OF KIAWAH ISLAND

P/N 2005-1W-310-P Sheet 3 of 13

PROJECT TITLE:	PREPARED FOR:	DRAWING TITLE:		
KIAWAH ISLAND EAST END EROSION AND BEACH RESTORATION PROJECT	TOWN OF KIAWAH ISLAND 21 BEACHWALKER DRIVE KIAWAH ISLAND, SC 29455	**PROJECT PLAN EXCAVATION, FILL AREAS, & TRANSECTS**	SCALE: AS SHOWN DATE: SEPT 2005 DRAWN BY: JJH PROJECT #: 2187	SHEET: 3 **3** OF: 13



WORK AREA

LEGEND - AREAS WEST OF LINE X-Y

- B - DESIGN LAGOON MARSH (~87 ACRES)
- C - DESIGN CHANNEL (~3 ACRES)
- DESIGN DRY BEACH (~75 AC)
- DESIGN WET BEACH (~98 AC)

NO WORK AREA

LEGEND - AREAS EAST OF LINE X-Y

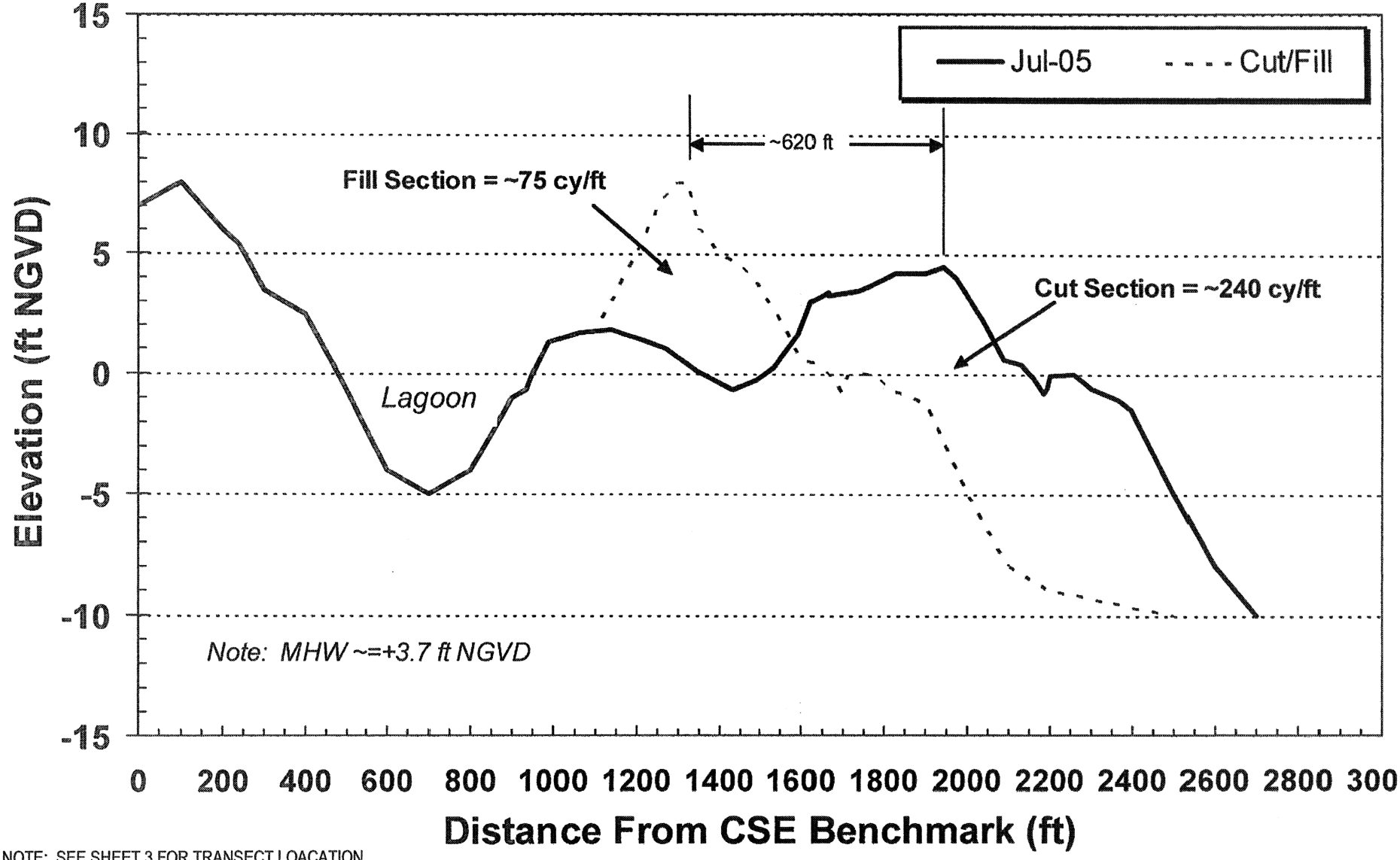
- A - EXISTING LAGOON MARSH (~79 ACRES)
- EXISTING DRY BEACH (~116 AC)
- EXISTING WET BEACH (~67 AC)
- NOTE: APPROXIMATE LOCATION OF 1989 SHORELINE

NOTE: SEE SHEET 3 FOR TRANSECT LOACATION

P/N 2005-1W-310-P Sheet 4 of 13

PROJECT TITLE:	PREPARED FOR:	DRAWING TITLE:		
KIAWAH ISLAND EAST END EROSION AND BEACH RESTORATION PROJECT	TOWN OF KIAWAH ISLAND 21 BEACHWALKER DRIVE KIAWAH ISLAND, SC 29455	**PROPOSED BEACH ALIGNMENT**	SCALE: AS SHOWN DATE: SEPT 2005 DRAWN BY: JJH PROJECT #: 2187	SHEET: 4 **4** OF: 13

Kiawah East Baseline Station 15+00

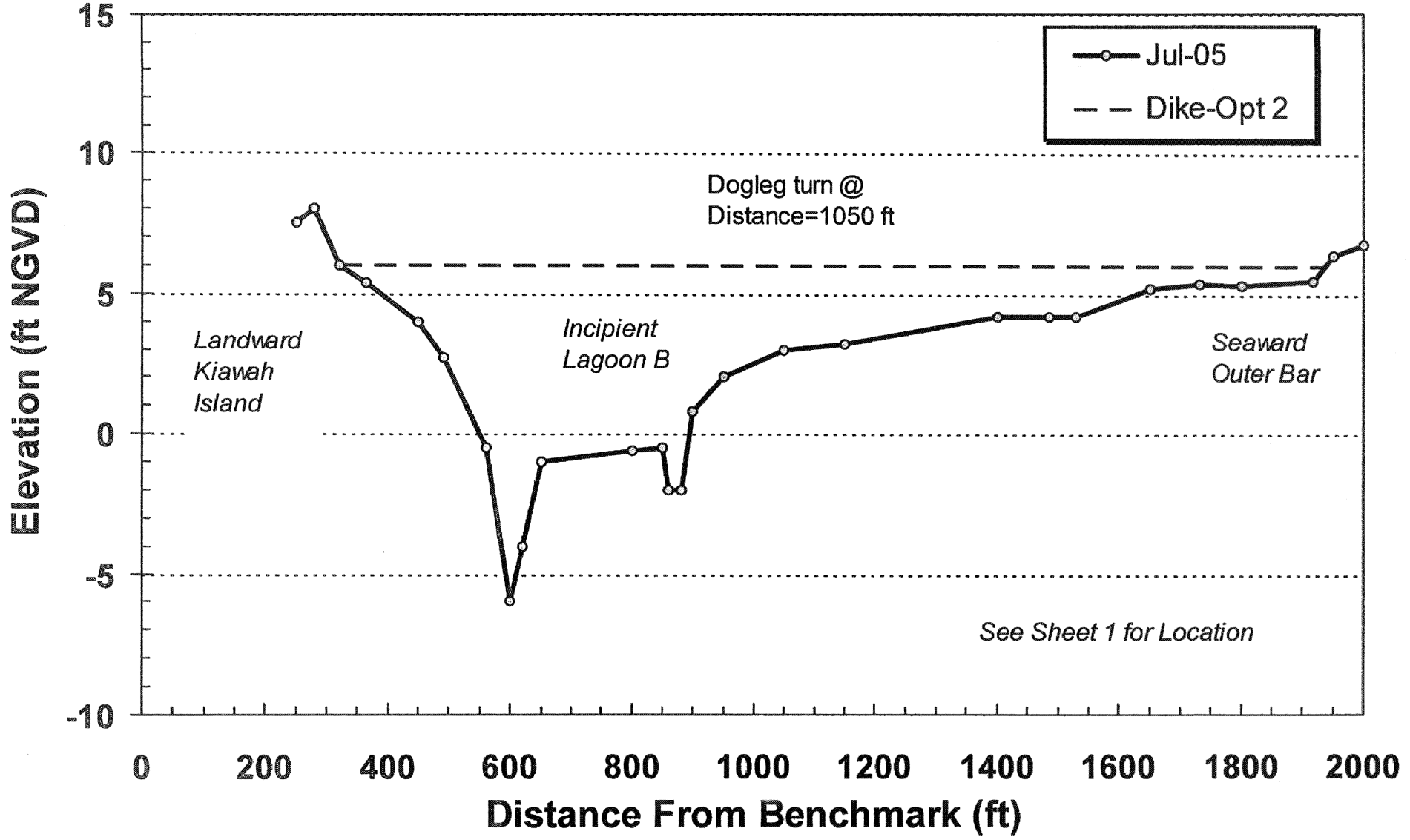


NOTE: SEE SHEET 3 FOR TRANSECT LOACATION

P/N 2005-1W-310-P sheet 5 of 13

PROJECT TITLE:	PREPARED FOR:	DRAWING TITLE:		
KIAWAH ISLAND EAST END EROSION AND BEACH RESTORATION PROJECT	TOWN OF KIAWAH ISLAND 21 BEACHWALKER DRIVE KIAWAH ISLAND, SC 29455	**TYPICAL SECTION EXCAVATION AND FILL**	SCALE: AS SHOWN DATE: SEPT 2005 DRAWN BY: JJH PROJECT #: 2187	SHEET: 5 **5a** OF: 13

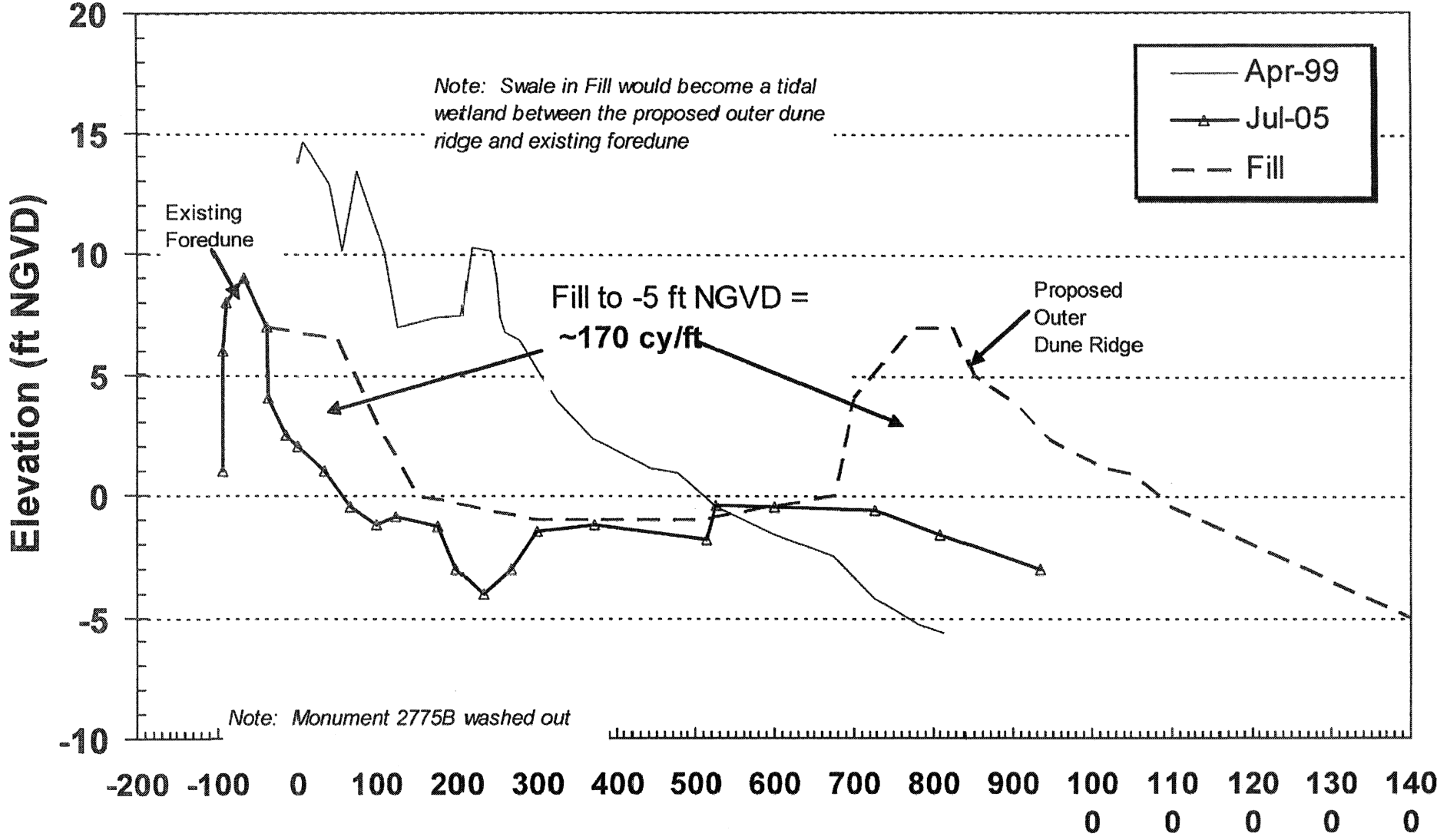
Kiawah Dike-X Temporary Construction Dike



P/N 2005-IW-310-P Sheet 6 of 13

PROJECT TITLE:	PREPARED FOR:	DRAWING TITLE:		
KIAWAH ISLAND EAST END EROSION AND BEACH RESTORATION PROJECT	TOWN OF KIAWAH ISLAND 21 BEACHWALKER DRIVE KIAWAH ISLAND, SC 29455	**TEMPORARY CONSTRUCTION DIKE FOR ACCESS**	SCALE: AS SHOWN DATE: SEPT 2005 DRAWN BY: JJH PROJECT #: 2187	SHEET: 6 **5b** OF: 13

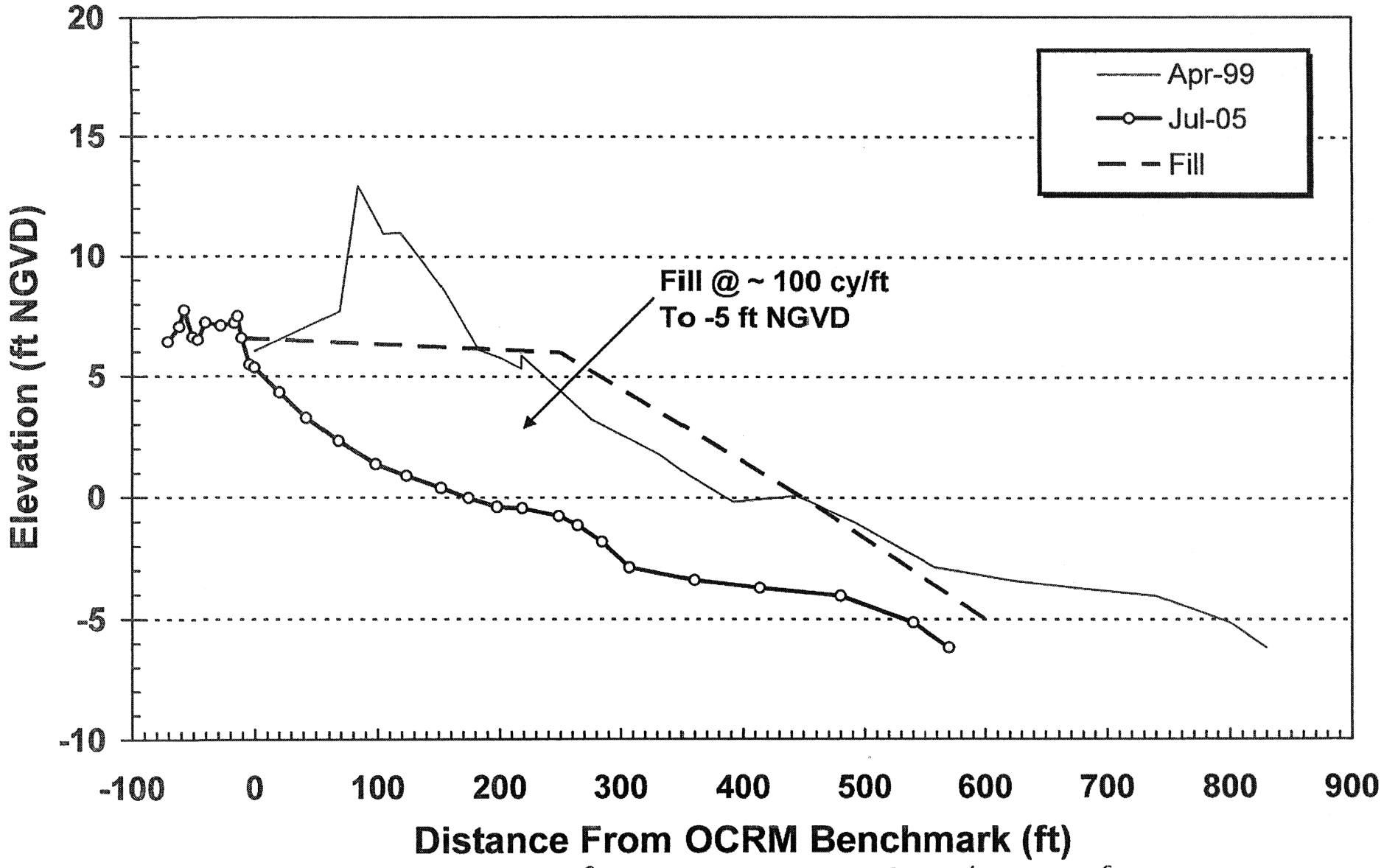
Kiawah Station: 2775



P/N 2005-IW-310-P Sheet 7 of 13

PROJECT TITLE:	PREPARED FOR:	DRAWING TITLE:		
KIAWAH ISLAND EAST END EROSION AND BEACH RESTORATION PROJECT	TOWN OF KIAWAH ISLAND 21 BEACHWALKER DRIVE KIAWAH ISLAND, SC 29455	**BEACH FILL SECTIONS & 1999-2005 EROSION**	SCALE: AS SHOWN DATE: SEPT 2006 DRAWN BY: JJH PROJECT #: 2187	SHEET: 7 **6a** OF: 13

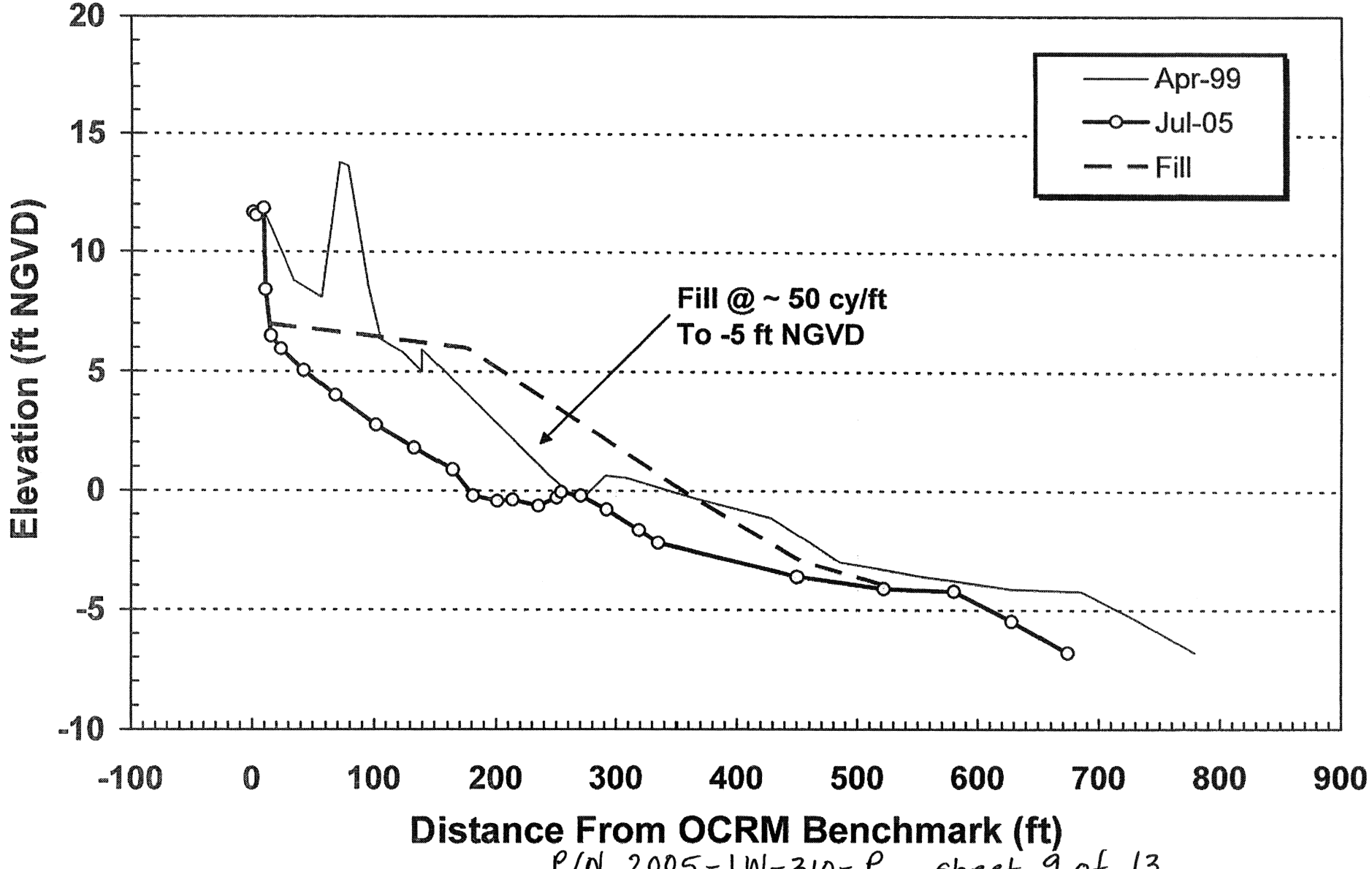
Kiawah Station: 2760



P/N 2005-IW-310-P Sheet 8 of 13

PROJECT TITLE:	PREPARED FOR:	DRAWING TITLE:		
KIAWAH ISLAND EAST END EROSION AND BEACH RESTORATION PROJECT	TOWN OF KIAWAH ISLAND 21 BEACHWALKER DRIVE KIAWAH ISLAND, SC 29455	**BEACH FILL SECTIONS & 1999-2005 EROSION**	SCALE: AS SHOWN DATE: SEPT 2005 DRAWN BY: JJH PROJECT #: 2187	SHEET: 8 **6b** OF: 13

Kiawah Station: 2750



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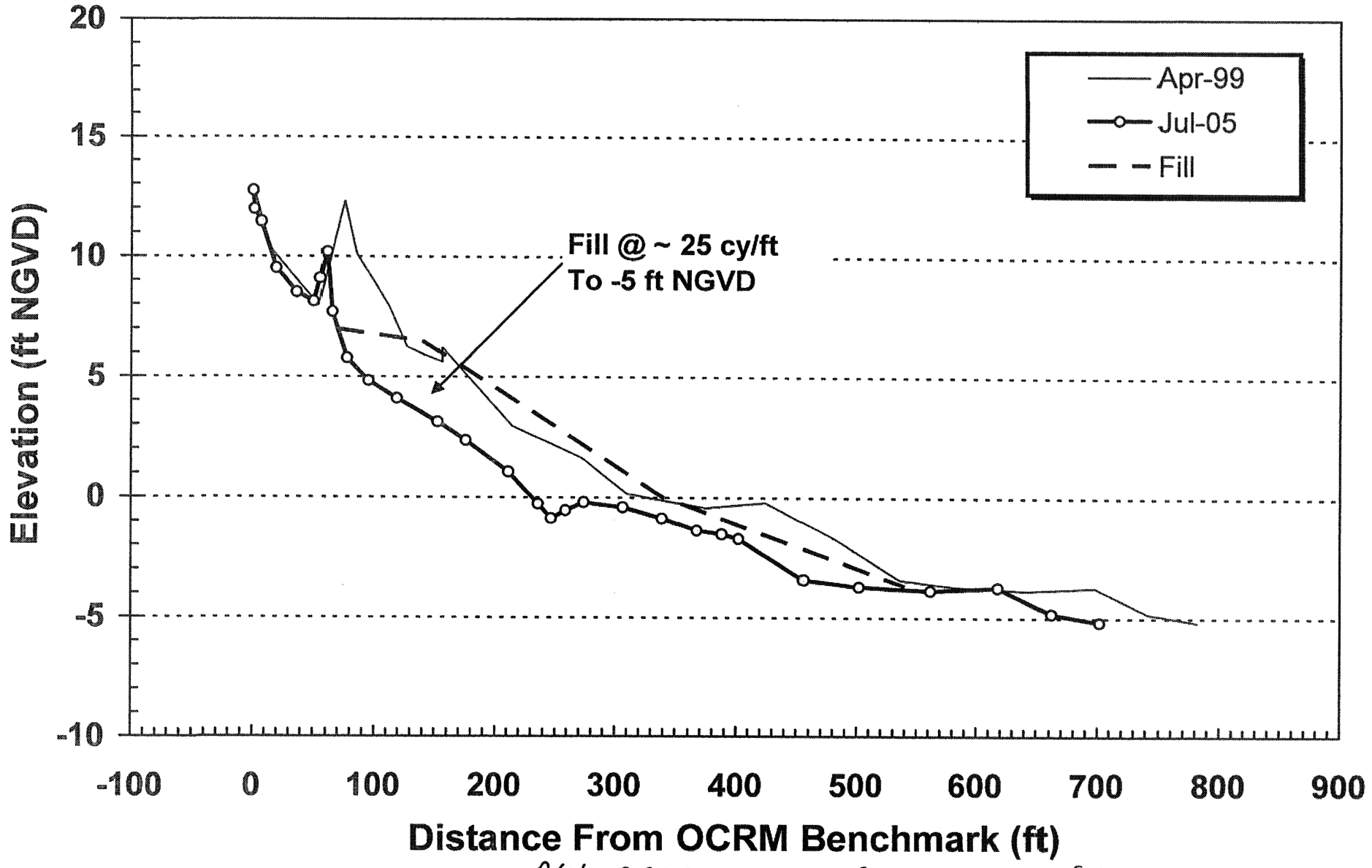
PROJECT TITLE:	PREPARED FOR:	DRAWING TITLE:		
KIAWAH ISLAND EAST END EROSION AND BEACH RESTORATION PROJECT	TOWN OF KIAWAH ISLAND 21 BEACHWALKER DRIVE KIAWAH ISLAND, SC 29455	**BEACH FILL SECTIONS & 1999-2005 EROSION**	SCALE: AS SHOWN DATE: SEPT 2005 DRAWN BY: JJH PROJECT #: 2187	SHEET: 9 **7a** OF: 13

Kiawah Station: 2745



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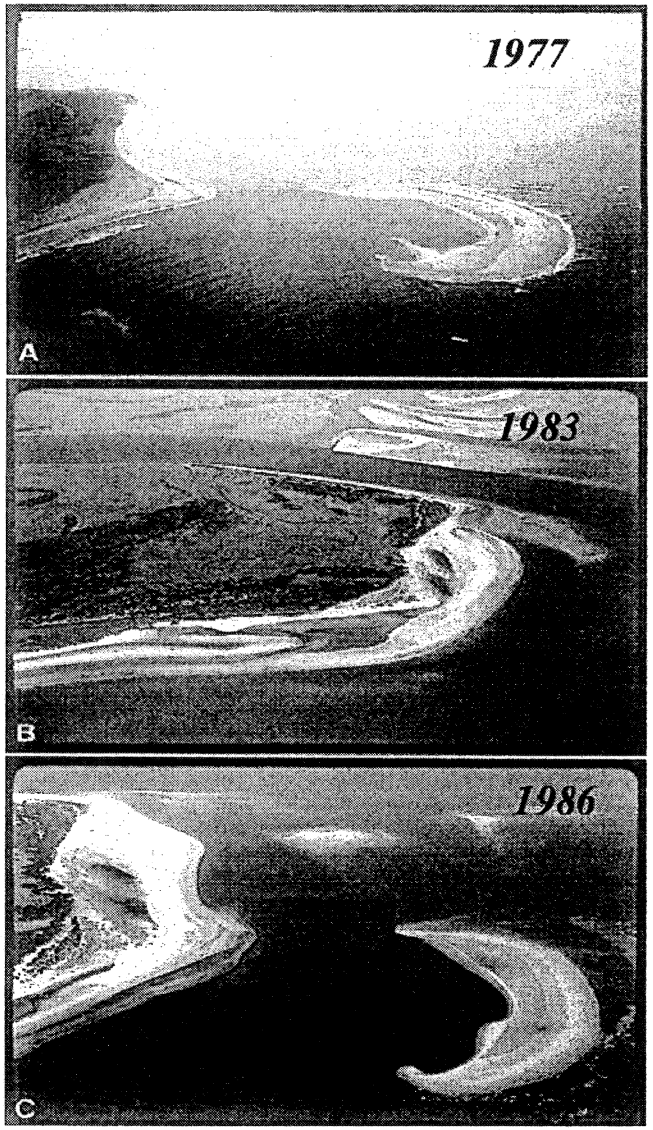
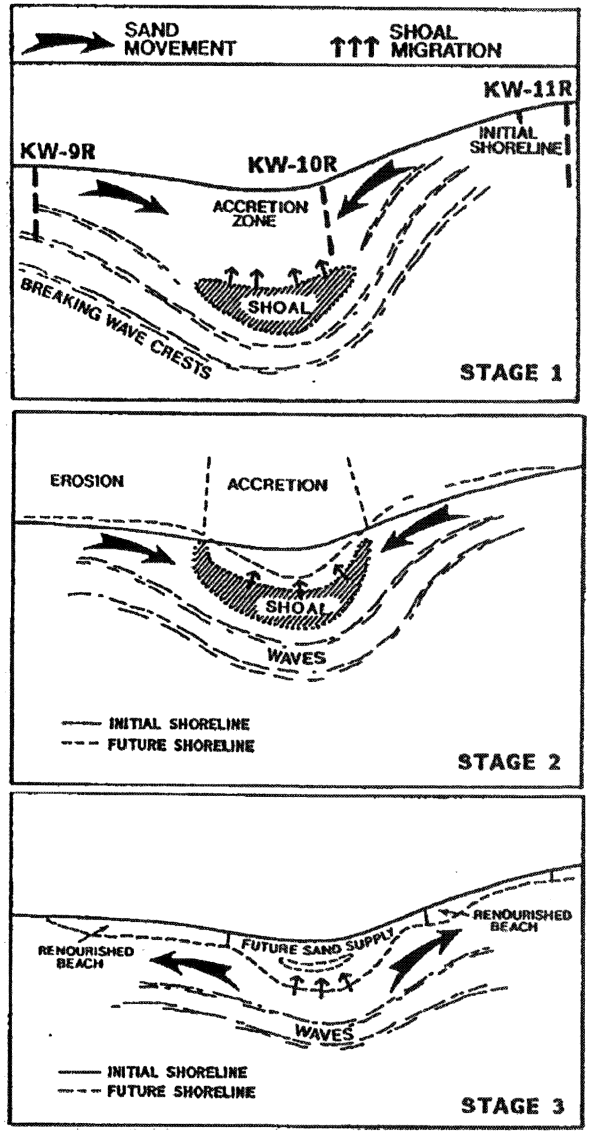
PROJECT TITLE:	PREPARED FOR:	DRAWING TITLE:		
KIAWAH ISLAND EAST END EROSION AND BEACH RESTORATION PROJECT	TOWN OF KIAWAH ISLAND 21 BEACHWALKER DRIVE KIAWAH ISLAND, SC 29455	**BEACH FILL SECTIONS & 1999-2005 EROSION**	SCALE: AS SHOWN DATE: SEPT 2005 DRAWN BY: JJH PROJECT #: 2187	SHEET: 10 **7b** OF: 13



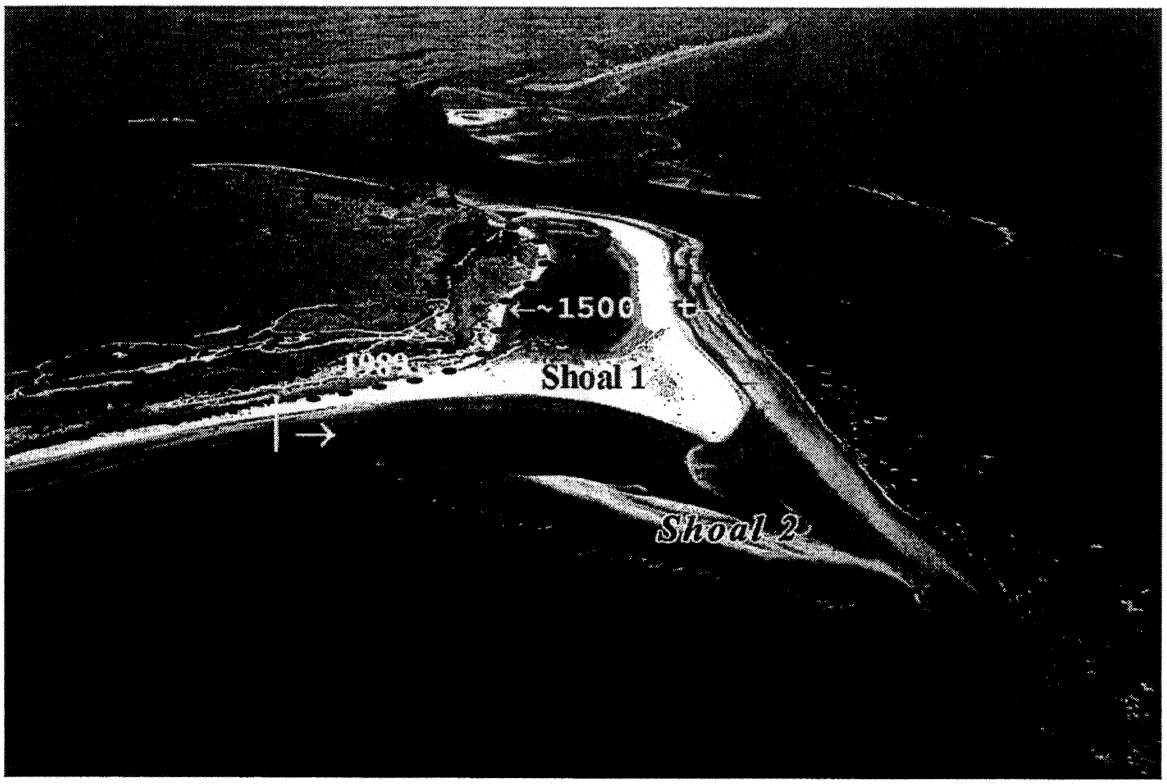
Shoal bypass cycles at Kiawah 1977-1986 account for seaward growth and formation of new interior wetlands (from CSE 1999).



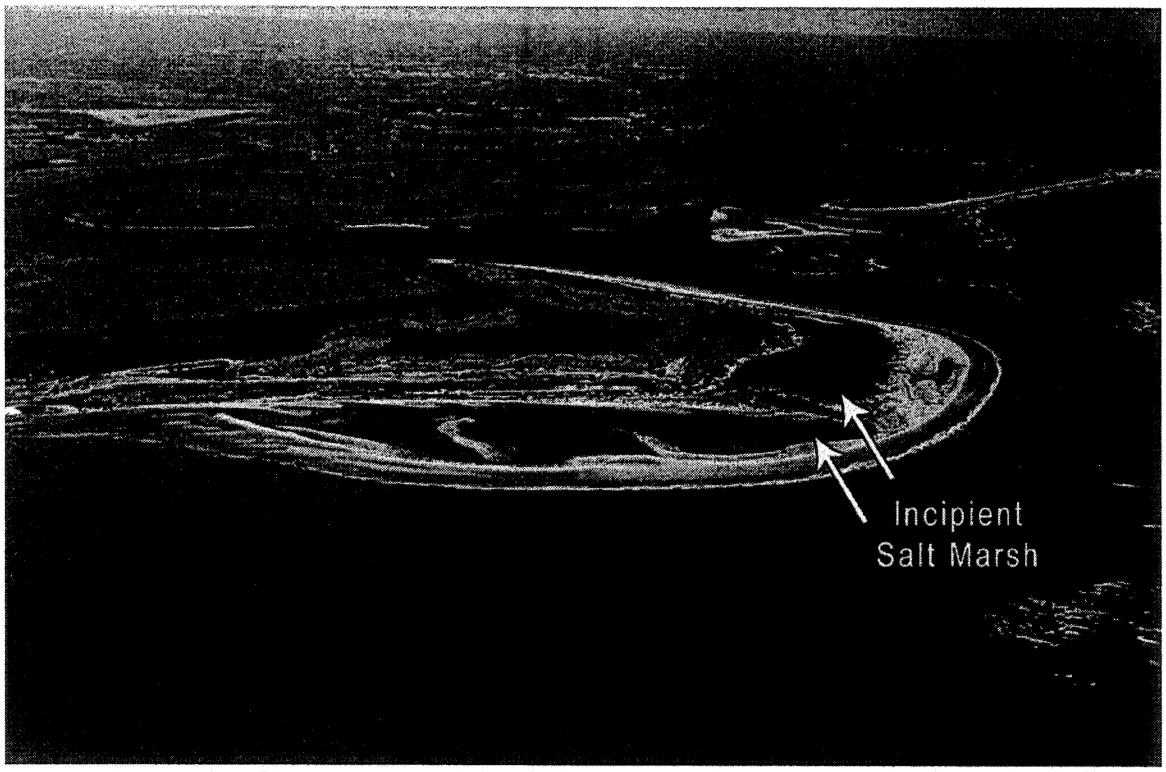
Shoal-bypass stages (from Williams and Kana 1986) - Kiawah's east end near the Ocean Course is presently in Stage 2 - the period of maximum erosion along the flanks of the accreting shoal.

P/N 2005-IW-310-P Sheet 11 of 13

PROJECT TITLE:	PREPARED FOR:	DRAWING TITLE:		
KIAWAH ISLAND EAST END EROSION AND BEACH RESTORATION PROJECT	TOWN OF KIAWAH ISLAND 21 BEACHWALKER DRIVE KIAWAH ISLAND, SC 29455	**INLET SHOAL BYPASSING CYCLES**	SCALE: AS SHOWN DATE: SEPT 2005 DRAWN BY: JJH PROJECT #: 2187	SHEET: 11 **8** OF: 13

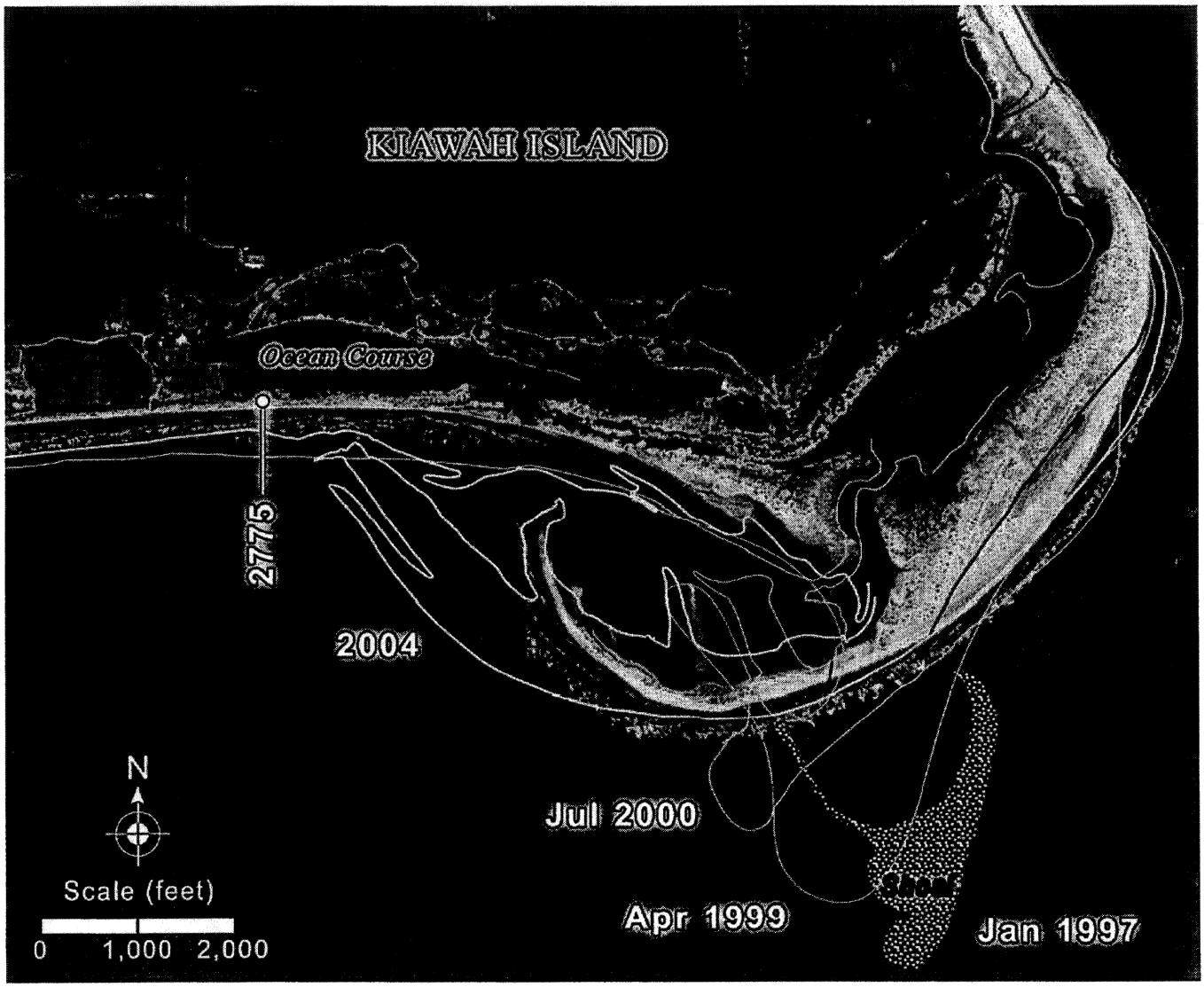


DECEMBER 1998



FEBRUARY 2005

PROJECT TITLE:	PREPARED FOR:	DRAWING TITLE:		
KIAWAH ISLAND EAST END EROSION AND BEACH RESTORATION PROJECT	TOWN OF KIAWAH ISLAND 21 BEACHWALKER DRIVE KIAWAH ISLAND, SC 29455	P/N 2005-IW-310-P EAST END CHANGES 1998-2005 Sheet 12 of 13	SCALE: AS SHOWN DATE: SEPT 2005 DRAWN BY: JJH PROJECT #: 2187	SHEET: 12 9 OF: 13



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PROJECT TITLE:	PREPARED FOR:	DRAWING TITLE:		
KIAWAH ISLAND EAST END EROSION AND BEACH RESTORATION PROJECT	TOWN OF KIAWAH ISLAND 21 BEACHWALKER DRIVE KIAWAH ISLAND, SC 29455	**EAST END HISTORICAL SHORELINE CHANGES 1997-2004**	SCALE: AS SHOWN DATE: SEPT 2005 DRAWN BY: JJH PROJECT #: 2187	SHEET: 13 10 OF: 13